

STUDIES IN THE COMPOSITAE-EUPATORIEAE, IX. A REVIEW OF THE GENUS EUPATORIUM SECTION HEBECLINIUM IN COLOMBIA

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In view of the ease with which the *Eupatorium* section *Hebeclinium* can be distinguished, and because of the new species, and the new records that have been discovered, this treatment of the nine species now known from Colombia is provided. The most recent previous study of *Eupatorium* in Colombia (B. L. Robinson 1918) included only four species of the group. The species included in the section *Hebeclinium* are distinguished from other *Eupatoriums* by having convex to conical receptacles bearing hairs which are sometimes in a dense tuft. These species, however, are of diverse types and may not represent a natural group.

The present study is based on material in the United States National Herbarium. We wish to thank Dr. Jose Cuatrecasas for providing material and suggestions.

The following key to the species utilizes both macroscopic and microscopic characters. Microscope slides of flowers have been made using Hoyer's solution as in previous studies (King & H. Robinson, 1966).

KEY TO SPECIES

- 1a. Leaves with winged auriculate-based petioles; florets
200 - 300 *E. nemorosum*
- 1b. Petioles not winged, florets less than 100 2
 - 2a. Inner surface of corolla tube bearing hairs 3
 - 2b. Inner surface of corolla tube glabrous 5
- 3a. Stems and leaves with dense, long white silky
pubescence *E. sericeum*
- 3b. Stems and leaves with short and sparse pubescence 4
 - 4a. Tips of pappus setae distinctly enlarged, corolla reddish
distally *E. cuatrecasasii*
 - 4b. Tips of pappus setae not distinctly enlarged, corolla
pale throughout *E. guevarae*
- 5a. Leaves lanceolate to narrowly ovate with dense brownish pubescence
below, upper surface usually densely minutely papillose, tips of pappus
setae distinctly enlarged *E. phoenicticum*
- 5b. Leaves very broadly ovate to cordate, sparsely pubescent, not papillose,
tips of setae not distinctly enlarged 6

- 6a. Phyllaries distinctly pubescent on the outer surface 7
 6b. Phyllaries essentially glabrous on the outer surface 8
 7a. Inner phyllaries sharply pointed, leaves coarsely
 crenulate-dentate *E. macrophyllum*
 7b. Phyllaries usually blunt, leaves serrate to serrulate *E. guapulense*
 8a. Leaf margins coarsely crenulate, achenes bearing
 setae above *E. erioclinium*
 8.b. Leaf margins minutely serrulate, achenes without
 setae *E. torondoyense*

Eupatorium nemorosum Klatt, as shown in the key, is a very distinct species and probably only remotely related. In addition to the characters cited above it alone of the nine species has only glands and no hairs on the corolla. Flowers that have been examined carefully show another character that seems unusual, the filaments in each flower are inserted at varying levels on the corolla.

Eupatorium torondoyense Badillo has been known previously only from Venezuela (Aristeguieta, 1964). As indicated below, the species is well represented in northeast Colombia with some collections having been made at least as early as 1927. The species has been confused with *E. macrophyllum* L. and *E. erioclinium* B. L. Robinson, both of which are closely related.

COLOMBIA: Magdalena, Cincinnati, *J. Giacometto 81*; Norte de Santander, Loso and vicinity (north of Toledo); alt. 2200-2400 m, *Killip and Smith 20364*; Santander, Rio Surata valley above Surata; alt. 2000-2300 m *Killip and Smith 16723*; vicinity of California; alt. 2200 m *Killip and Smith 17101*; vicinity of La Baja; alt. 3000 m *Killip and Smith 18133, 18356*; southern slope of Mount San Martin, near Charta; alt. 2300-2500 m *Killip and Smith 19144*.

Eupatorium guevarae R. M. King and H. Robinson sp. nov.

Suffrutex pauci-ramosus, erectus; folia opposita, petiolata; laminae late-ovatae, breviter acuminatae, dentato crenatae usque ad 5 cm latae, 8 cm longae; capitula ca. 20 flora; receptaculum parce pilosum, convexiusculum, corollae sordide albidae?, tubulo intus setifero; pappi setae 35-40, apice non incrassatae; achenia 4-5 costata, pauce glandulosa.

Suffrutescent shrub ca. $\frac{3}{4}$ meter tall; stem single, erect, striate, glabrous to sparingly pubescent; leaves thin, glabrous, opposite, petioled; leaf blades broadly ovate, sometimes cordate, up to 5 cm wide and 8 cm long; veins of leaf very prominent on the under surface; leaf margins dentate-crenate; inflorescence a loose cymose-panicle; heads discoid, campanulate, ca. 5 mm broad; ca. 8 mm tall (including style branches); receptacle convex, with sparse hairs, ca 20 flowered; phyllaries 3 nerved, 30-35, in 4-5 series, broadly lanceolate with a rather blunt apex; margin of phyllaries very finely serrulate; florets pale? narrowly funnel-form, ca 3 mm long (including lobes), 5 lobed; lobes nearly twice as long as wide, outer surface with several prominent multicellular uniseriate hairs and a few glands, the rest of the outer surface glabrous; inner surface of corolla tube bearing several rather long uniseriately multicellular hairs; stamens 5, appendaged; pappus of



Plate I. *Eupatorium guevarae* R. M. King and H. Robinson. Holotype (US), R. M. King and A. E. Guevara 6183.

35-40 setae scarcely enlarged at the tips, *ca* 3 mm long; achenes prismatic, 4-5 ribbed, glabrous below with a few glands above; base of achene enlarged and differentiated into a distinct carpopodium; pollen spherical, tricolpate, distinctly spinose, *ca* 17 μ in diameter; chromosome number determined as $n = 10$ (Powell and King 1968).

Holotype in the United States National Herbarium (2502393) *R. M. King* and *A. E. Guevara* 6183. COLOMBIA: Eastern Cordillera, Territory of Putumayo. "EL Mirador," *circa* 50 kms generally east of San Francisco. Elevation 2100 meters.

The species is very closely related to *E. cuatrecasasii* n. sp. and differences are indicated under that species. The species is named for Alvaro E. Guevara, a teacher from Alexandria, Virginia, who accompanied the senior author on his collecting trip to Colombia.

Eupatorium cuatrecasasii *R. M. King* and *H. Robinson* sp. nov.

Suffrutex pauci-ramosus, erectus; folia opposita, petiolata; laminae lateovatae, breviter acuminatae, dentato-crenatae usque ad 8 cm latae, 10 cm longae; capitula *ca* 20 flora; receptaculum dense pilosum, conicum; corollae rubellae, tubulo intus setifero; pappis setae 35-40, apice incrassatae; achenea 4-5 costata, angulis parce scabrido-setosis.

Suffrutescent shrub 3 m tall; stem, leaves, pollen similar to *E. guevarae* but stems rather densely pubescent, leaves densely pubescent on the veins, up to 8 cm wide and 10 cm long; inflorescence a loose cymose-panicle; heads discoid, campanulate *ca* 5 mm broad *ca* 7 mm tall (including style branches); receptacle very conical with a tuft of numerous long hairs, *ca* 20 flowered; phyllaries 5-7 nerved, 30-35, in 5-6 series, broadly lanceolate with a blunt apex, margin of phyllaries very finely serrulate; florets red-violet in upper part, narrowly funnelform, *ca* 3 $\frac{1}{4}$ mm long (including lobes), 5 lobed; lobes more than twice as long as wide, outer surface of corolla glabrous below, with glands on the lobes; inner surface of corolla tube bearing several rather long uniseriately multicellular hairs; stamens 5, appendaged; pappus of 35-40 setae very much enlarged at the tips, *ca* 3 mm long; achenes prismatic, 4-5 ribbed, dark brown, with setae; base of achene enlarged and differentiated into a distinct carpopodium; chromosome number not determined.

Ho'totype in the United States National Herbarium (2270091) *J. Cuatrecasas* 15607. COLOMBIA: Cordillera Occidental, Departamento del Valle, vertiente occidental, Hoya del rio Sanquinini, lado izquierdo, La Laguna, bosques, 1,250-1,400 m alt.

The species is another of the many apparent endemics collected Dr. Jose Cuatrecasas in the lowlands along the Pacific coast of Colombia. The species is very closely related to *Eupatorium guevarii* n. sp. which is presently known only from Putumayo on the eastern slopes of the cordilleras. *Eupatorium cuatrecasasii*, in spite of the close relationship, differs from *E. guevarae* by somewhat hairier stems and leaf veins, enlarged tips on the pappus setae, a reddish corolla, and numerous glands without evident hairs on the

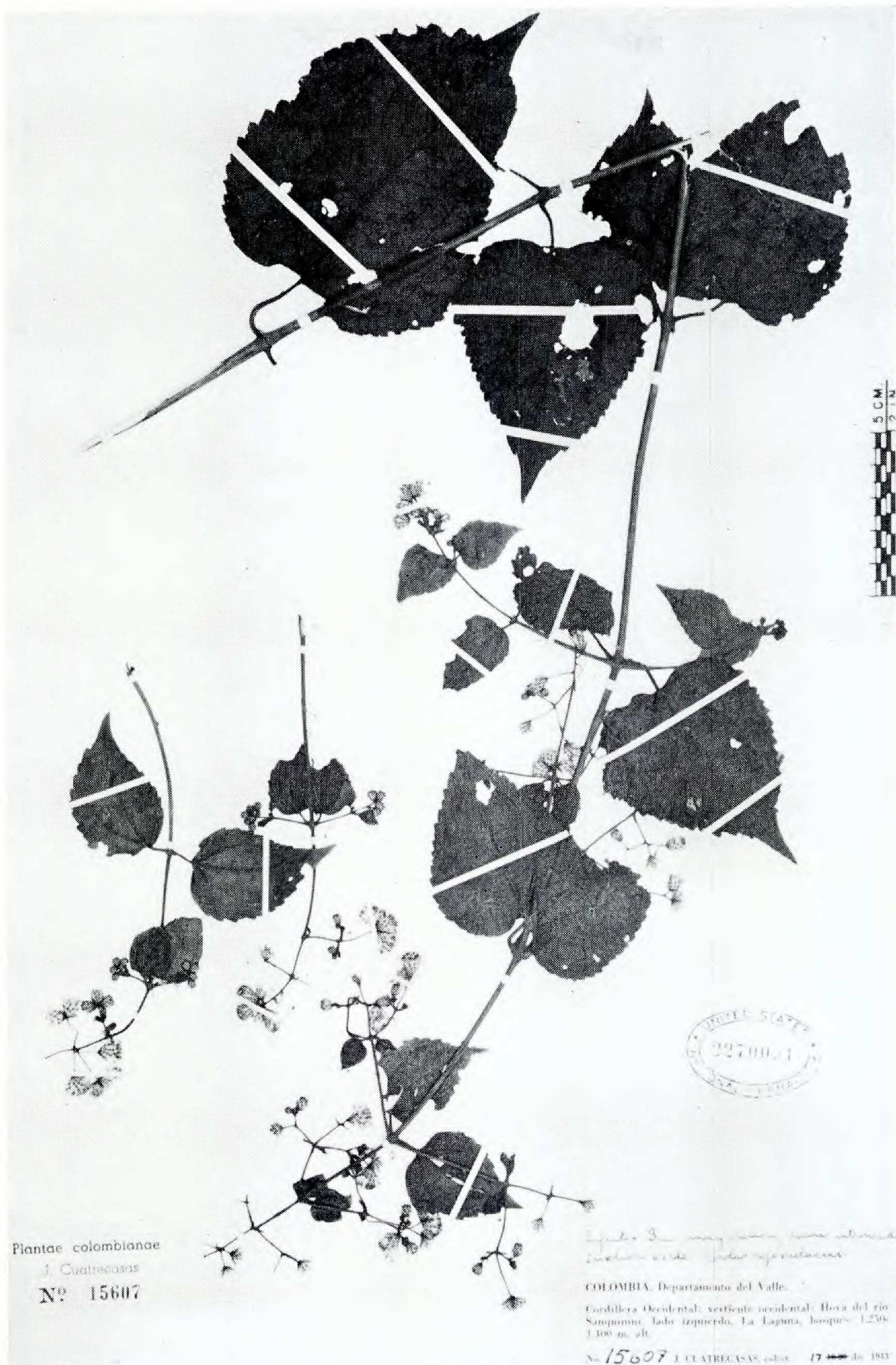


Plate II. *Eupatorium cuatrecasasii* R. M. King and H. Robinson. Holotype (US), J. Cuatrecasas 15607.

outside of the corolla lobes. If the hairs on the inside of the corolla tube are any indication, the two species are probably most closely related to *E. sericeum* H.B.K., but such relationship is evidently still rather remote.

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